

**Amendment and Response**

Applicant: Antoni Gil

Serial No.: 10/620,878

Filed: July 16, 2003

Docket No.: 600200944-1

Title: PRINthead ARRANGEMENT

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**IN THE CLAIMS**

Please cancel claims 1-9 without prejudice.

1-9. (Cancelled)

10. (Original) A printhead arrangement, comprising:

a first printhead assembly including a first carrier, a first plurality of printhead dies each mounted on the first carrier and adapted to print a first color, and a second plurality of printhead dies each mounted on the first carrier and adapted to print a second color; and

a second printhead assembly including a second carrier, a third plurality of printhead dies each mounted on the second carrier and adapted to print a third color, and a fourth plurality of printhead dies each mounted on the second carrier and adapted to print a fourth color,

wherein the first printhead assembly and the second printhead assembly are in-line and fully overlap.

11. (Original) The printhead arrangement of claim 10, wherein the first plurality of printhead dies and the third plurality of printhead dies are in-line and fully overlap, and the second plurality of printhead dies and the fourth plurality of printhead dies are in-line and fully overlap.

12. (Original) The printhead arrangement of claim 10, wherein each of the first plurality of printhead dies are offset from and partially overlap an adjacent one of the first plurality of printhead dies, each of the second plurality of printhead dies are offset from and partially overlap an adjacent one of the second plurality of printhead dies, each of the third plurality of printhead dies are offset from and partially overlap an adjacent one of the third plurality of printhead dies, and each of the fourth plurality of printhead dies are offset from and partially overlap an adjacent one of the fourth plurality of printhead dies.

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13. (Withdrawn) The printhead arrangement of claim 10, wherein the first plurality of printhead dies, the second plurality of printhead dies, the third plurality of printhead dies, and the fourth plurality of printhead dies each include at least one column of nozzles.

14. (Original) The printhead arrangement of claim 10, wherein the first plurality of printhead dies and the second plurality of printhead dies are mounted on a face of the first carrier, and the third plurality of printhead dies and the fourth plurality of printhead dies are mounted on a face of the second carrier, and wherein the first printhead assembly is substantially symmetrical about an axis oriented substantially perpendicular to the face of the first carrier, and the second printhead assembly is substantially symmetrical about an axis oriented substantially perpendicular to the face of the second carrier.

15. (Original) The printhead arrangement of claim 10, wherein the first plurality of printhead dies and the third plurality of printhead dies are adapted to print within a first area when the second plurality of printhead dies and the fourth plurality of printhead dies are adapted to print within a second area.

16. (Original) The printhead arrangement of claim 15, wherein the first area and the second area partially overlap.

17. (Original) The printhead arrangement of claim 10, further comprising:  
an additional first printhead assembly; and  
an additional second printhead assembly,  
wherein the additional first printhead assembly and the additional second printhead assembly are both in-line with and fully overlap both the first printhead assembly and the second printhead assembly.

18. (Original) The printhead arrangement of claim 17, wherein the additional second printhead assembly is positioned between the second printhead assembly and the additional first printhead assembly.

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19. (Original) The printhead arrangement of claim 17, wherein the additional first printhead assembly and the additional second printhead assembly are inverted relative to the first printhead assembly and the second printhead assembly.

20. (Original) The printhead arrangement of claim 17, wherein the additional first printhead assembly includes an additional first carrier, an additional first plurality of printhead dies each mounted on the additional first carrier and adapted to print the first color, and an additional second plurality of printhead dies each mounted on the additional first carrier and adapted to print the second color, and

wherein the additional second printhead assembly includes an additional second carrier, an additional third plurality of printhead dies each mounted on the additional second carrier and adapted to print the third color, and an additional fourth plurality of printhead dies each mounted on the additional second carrier and adapted to print the fourth color.

21. (Original) The printhead arrangement of claim 19, wherein the first plurality of printhead dies of the first printhead assembly, the third plurality of printhead dies of the second printhead assembly, the additional fourth plurality of printhead dies of the additional second printhead assembly, and the additional second plurality of printhead dies of the additional first printhead assembly are arranged in a first order in a first direction, and the additional first plurality of printhead dies of the additional first printhead assembly, the additional third plurality of printhead dies of the additional second printhead assembly, the fourth plurality of printhead dies of the second printhead assembly, and the second plurality of printhead dies of the first printhead assembly are arranged in the first order in a second direction opposite the first direction.

22. (Original) The printhead arrangement of claim 10, further comprising:

a third printhead assembly including a third carrier, a fifth plurality of printhead dies each mounted on the third carrier and adapted to print a fifth color, and a sixth plurality of printhead dies each mounted on the third carrier and adapted to print a sixth color,

wherein the first printhead assembly, the second printhead assembly, and the third printhead assembly are in-line and fully overlap.

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23. (Original) The printhead arrangement of claim 22, wherein the first plurality of printhead dies, the third plurality of printhead dies, and the fifth plurality of printhead dies are in-line and fully overlap, and the second plurality of printhead dies, the fourth plurality of printhead dies, and the sixth plurality of printhead dies are in-line and fully overlap.

24. (Original) A method of forming a printhead arrangement, the method comprising:  
forming a first printhead assembly, including providing a first carrier, mounting a first plurality of printhead dies each adapted to print a first color on the first carrier, and mounting a second plurality of printhead dies each adapted to print a second color on the first carrier;  
forming a second printhead assembly, including providing a second carrier, mounting a third plurality of printhead dies each adapted to print a third color on the second carrier, and mounting a fourth plurality of printhead dies each adapted to print a fourth color on the second carrier; and  
positioning the first printhead assembly and the second printhead assembly in-line, including fully overlapping the first printhead assembly and the second printhead assembly.

25. (Original) The method of claim 24, wherein mounting the first plurality and the second plurality of printhead dies on the first carrier includes offsetting and partially overlapping each of the first plurality and the second plurality of printhead dies with an adjacent one of the first plurality and the second plurality of printhead dies, and mounting the third plurality and the fourth plurality of printhead dies on the second carrier includes offsetting and partially overlapping each of the third plurality and the fourth plurality of printhead dies with an adjacent one of the third plurality and the fourth plurality of printhead dies.

26. (Withdrawn) The method of claim 24, wherein the first plurality of printhead dies, the second plurality of printhead dies, the third plurality of printhead dies, and the fourth plurality of printhead dies each include at least one column of nozzles.

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27. (Original) The method of claim 24, wherein mounting the first plurality and the second plurality of printhead dies on the first carrier includes symmetrically mounting the second plurality of printhead dies with the first plurality of printhead dies about an axis oriented substantially perpendicular to a face of the first carrier, and mounting the third plurality and the fourth plurality of printhead dies on the second carrier includes symmetrically mounting the fourth plurality of printhead dies with the third plurality of printhead dies about an axis oriented substantially perpendicular to a face of the second carrier.
28. (Original) The method of claim 24, further comprising:  
forming an additional first printhead assembly;  
forming an additional second printhead assembly; and  
positioning the additional first printhead assembly and the additional second printhead assembly in-line with the first printhead assembly and the second printhead assembly, including fully overlapping the first printhead assembly, the second printhead assembly, the additional first printhead assembly, and the additional second printhead assembly.
29. (Original) The method of claim 28, wherein positioning the additional first printhead assembly and the additional second printhead assembly includes positioning the additional second printhead assembly between the second printhead assembly and the additional first printhead assembly.
30. (Original) The method of claim 28, wherein positioning the additional first printhead assembly and the additional second printhead assembly includes inverting the additional first printhead assembly and the additional second printhead assembly relative to the first printhead assembly and the second printhead assembly.
31. (Original) The method of claim 24, wherein the first color includes one of black, cyan, yellow, and magenta, the second color includes another of black, cyan, yellow, and magenta, the third color includes another of black, cyan, yellow, and magenta, and the fourth color includes another of black, cyan, yellow, and magenta.

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32. (Original) The method of claim 24, further comprising:

forming a third printhead assembly, including providing a third carrier, mounting a fifth plurality of printhead dies each adapted to print a fifth color on the third carrier, and mounting a sixth plurality of printhead dies each adapted to print a sixth color on the third carrier; and

positioning the first printhead assembly, the second printhead assembly, and the third printhead assembly in-line, including fully overlapping the first printhead assembly, the second printhead assembly, and the third printhead assembly.

33. (Original) A method of printing, comprising:

ejecting a first color ink from a first plurality of printhead dies of a first printhead assembly;

ejecting a second color ink from a second plurality of printhead dies of the first printhead assembly;

ejecting a third color ink from a third plurality of printhead dies of a second printhead assembly; and

ejecting a fourth color ink from a fourth plurality of printhead dies of the second printhead assembly.

34. (Original) The method of claim 33, wherein ejecting the first color ink, the second color ink, the third color ink, and the fourth color ink includes ejecting the first color ink and the third color ink within a first area while ejecting the second color ink and the fourth color ink within a second area.

35. (Original) The method of claim 34, wherein the first area and the second area overlap.

36. (Original) The method of claim 33, wherein the first plurality and the second plurality of printhead dies are mounted on a first carrier, and the third plurality and the fourth plurality of printhead dies are mounted on a second carrier.

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37. (Original) The method of claim 33, further comprising:
- ejecting the first color ink from an additional first plurality of printhead dies of an additional first printhead assembly;
  - ejecting the second color ink from an additional second plurality of printhead dies of the additional first printhead assembly;
  - ejecting the third color ink from an additional third plurality of printhead dies of an additional second printhead assembly; and
  - ejecting the fourth color ink from an additional fourth plurality of printhead dies of the additional second printhead assembly.
38. (Original) The method of claim 37, wherein ejecting the first color ink, the second color ink, the third color ink, and the fourth color ink includes ejecting the first color ink from the first printhead assembly, the third color ink from the second printhead assembly, the fourth color ink from the additional second printhead assembly, and the second color ink from the additional first printhead assembly in a first order in a first direction, and ejecting the first color ink from the additional first printhead assembly, the third color ink from the additional second printhead assembly, the fourth color ink from the second printhead assembly, and the second color ink from the first printhead assembly in the first order in a second direction opposite the first direction.
39. (Original) The method of claim 33, further comprising:
- ejecting a fifth color ink from a fifth plurality of printhead dies of a third printhead assembly; and
  - ejecting a sixth color ink from a sixth plurality of printhead dies of the third printhead assembly.
40. (Original) A method of printing, comprising:
- providing a plurality of in-line printhead assemblies each including a first plurality of printheads configured to print a first swath and a second plurality of printheads configured to print a second swath adjacent the first swath;

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supplying different ones of black, cyan, magenta, and yellow inks to the first plurality of printheads of different ones of the printhead assemblies in a first order; and

supplying different ones of black, cyan, magenta, and yellow inks to the second plurality of printheads of corresponding different ones of the printhead assemblies in a second order reversed from the first order.

41. (Original) The method of claim 40, further comprising:

supplying different ones of light cyan and light magenta inks to the first plurality of printheads of additional ones of the printhead assemblies in a third order; and

supplying different ones of light cyan and light magenta inks to the second plurality of printheads of corresponding additional ones of the printhead assemblies in a fourth order reversed from the third order.

42. (Original) A printhead arrangement, comprising:

means for printing a first color and a second color with a first printhead assembly;

means for printing a third color and a fourth color with a second printhead assembly in-line with and fully overlapping the first printhead assembly; and

means for printing the first color and the third color within a first area, and printing the second color and the fourth color within a second area adjacent the first area.

43. (Original) The printhead arrangement of claim 42, wherein means for printing the first color and the second color includes a first plurality of printhead dies each adapted to print the first color and a second plurality of printhead dies each adapted to print the second color, and wherein means for printing the third color and the fourth color includes a third plurality of printhead dies each adapted to print the third color and a fourth plurality of printhead dies each adapted to print the fourth color.

44. (Original) The printhead arrangement of claim 43, wherein the first plurality of printhead dies and the second plurality of printhead dies are mounted on a carrier of the first printhead assembly, and the third plurality of printhead dies and the fourth plurality of printhead dies are mounted on a carrier of the second printhead assembly.



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45. (Original) The printhead arrangement of claim 43, wherein means for printing the first color and the third color within the first area includes substantially aligning the first plurality of printhead dies and the third plurality of printhead dies, and printing the second color and the fourth color within the second area includes substantially aligning the second plurality of printhead dies and the fourth plurality of printhead dies.

46. (Original) The printhead arrangement of claim 42, wherein the first area and the second area partially overlap.